PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Bernhard DE VRIES et al. Attn: PCT Branch

Application No. New U.S. National Stage of PCT/EP03/01121

Filed: July 13, 2004 Docket No.: 120399

For: KETONE PEROXIDE COMPOSITIONS

SUBMISSION OF THE ANNEXES TO THE INTERNATIONAL PRELIMINARY EXAMINATION REPORT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Attached hereto is the annexes to the International Preliminary Examination Report (Form PCT/IPEA/409). The attached material replaces the claims.

Respectfully submitted,

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Date: July 13, 2004

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Claims

1. A composition of a ketone peroxide comprising
   a) a peroxide derivative of the formula
      $HOO-C(R_1)(R_2)-OOH$
      wherein
      R_1 is a branched or unbranched alkyl group with 1 to 4 carbon atoms or alkenyl group with 2 to 4 carbon atoms; and
      R_2 is a branched or unbranched alkyl or alkenyl group with 5 to 12 carbon atoms; and
   b) a branched or unbranched hydrocarbon solvent;
      the peroxide derivative of a) having a solubility more than 40 g in 100 g of the solvent of b) at 20°C; and
      comprises less than 10 wt.% of a peroxide derivative of the formula
      $HOO-C(R_1)(R_2)-OO-C(R_1)(R_2)-OOH$,
      wherein R_1 and R_2 have the previously given meanings.

2. The composition of claim 1 wherein R_1 and R_2 are alkyl groups.

3. The composition of claim 2 wherein R_1 is a methyl group and R_2 is an isoamyl or amyl group.

4. The composition of any one of claims 1-3 wherein the solvent is a saturated aliphatic hydrocarbon.

5. A composition of a ketone peroxide derived bis-peroxyester, bis-peroxycarbonate, or mixed peroxyester-peroxycarbonate comprising
   a) a ketone peroxide derived bis-peroxyester, bis-peroxycarbonate, or mixed peroxyester-peroxycarbonate derivative of the formula
      $R_3[O]_nC(O)OO-C(R_1)(R_2)-OOC(O)[O]_nR_3$
      wherein
      R_1 is a branched or unbranched alkyl group with 1 to 4 carbon atoms or

alkenyl group with 2 to 4 carbon atoms; and
R_2 is a branched or unbranched alkyl or alkenyl group with 5 to 12 carbon atoms; and
R_3 is independently selected from a branched or unbranched alkyl group with 1 to 12 carbon atoms, alkenyl group with 2 to 12 carbon atoms; and an aromatic group with 6-12 carbon atoms,
n is independently 0 or 1, and

b) a branched or unbranched hydrocarbon solvent;
and
comprising less than 10 wt.% of a peroxide derivative of the formula $R_3[O]_nC(O)OO\text{-}C(R_1)(R_2)\text{-}OO\text{-}C(R_1)(R_2)\text{-}OOC(O)[O]_nR_3$,
wherein R_1, R_2, R_3, and n have the previously given meanings.

6. A composition of a ketone peroxide derived monoperoxyester or monoperoxycarbonate comprising

a) a ketone peroxide derived monoperoxyester or monoperoxycarbonate derivative of the formula
$HOO\text{-}C(R_1)(R_2)\text{-}OOC(O)[O]nR_3$
wherein
R_1 is a branched or unbranched alkyl group with 1 to 4 carbon atoms or alkenyl group with 2 to 4 carbon atoms; and
R_2 is a branched or unbranched alkyl or alkenyl group with 5 to 12 carbon atoms; and
R_3 is selected from a branched or unbranched alkyl group with 1 to 12 carbon atoms, alkenyl with 2 to 12 carbon atoms; and an aromatic group with 6-12 carbon atoms;
n is 0 or 1, and

b) a branched or unbranched hydrocarbon solvent;
and
comprising less than 10 wt.% of a peroxide derivative of the formula
$HOO\text{-}C(R_1)(R_2)\text{-}OO\text{-}C(R_1)(R_2)\text{-}OO\ C(O)[O]_nR_3$,

wherein R_1, R_2, R_3, and n have the previously given meanings.

7. A process for the preparation of a peroxide derivative of the formula
HOO-C(R_1)(R_2)-OOH
wherein
R_1 is a branched or unbranched alkyl group with 1 to 4 carbon atoms or alkenyl group with 2 to 4 carbon atoms; and
R_2 is a branched or unbranched alkyl or alkenyl group with 5 to 12 carbon atoms;
comprising the step wherein a ketone of the formula O=C(R_1)(R_2), wherein R_1 and R_2 have the previously given meanings, is reacted with hydrogen peroxide in a branched or unbranched hydrocarbon solvent in the presence of an acidic catalyst.

8. A method for the preparation of the composition of any one of claims 1-4 by using the process according to claim 8.

9. Use of the composition of any one of claims 1-6 for polymerizing vinylchloride, (meth)acrylic monomers, styrene, ethylene, or mixtures thereof, for curing unsaturated polyester or vinylester resins, for grafting monomers onto a polymer, for crosslinking a polymer or for degrading a polymer.